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Conceptualising a social business blockchain: The coexistence of social and economic logics

Anthony Devine^{a,*}, Abdul Jabbar^b, Jonathan Kimmitt^c, Chrysostomos Apostolidis^a

^a Newcastle Business School, Northumbria University, Newcastle Upon Tyne, NE1 8ST, United Kingdom

^b Huddersfield Business School, University of Huddersfield, Queensgate, HD1 3DH, United Kingdom

^c Newcastle University Business School, Newcastle University, 5 Barrack Road, Newcastle Upon Tyne, NE1 4SE, United Kingdom

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ABSTRACT

In this paper we explore how blockchain and smart contracts can build trust and act as catalysts for sustainable social businesses by supporting the coexistence of social and economic logics of social ventures. To achieve this we draw upon Yunus' seven principles of social business to present six emergent questions challenging how blockchain can improve the sustainability of social ventures and support the fulfilment of the principles. Our contribution is a social business blockchain model, codifying Yunus' principles as smart contract functions, offering novel insights into how blockchain could be utilised to promote the coexistence of social and economic logics (i.e. the defining characteristics of a social business). In addition, it demonstrates that implementation of this technology elicits new types of trust relationships between stakeholders, social businesses and the blockchain, which can be facilitated through the use of smart contracts.

1.0. Introduction

Since the emergence of blockchain in 2008 as a distributed ledger to store all transactions (Zachariadis et al., 2019), and its application to cryptocurrency (e.g. Bitcoin), there has been an upsurge in literature exploring the application of blockchain technology to a range of areas. These include financial services (Yang et al., 2019), health (Tapscott and Tapscott, 2017), governance (Pereira et al., 2019), the Internet of Things (Christidis and Devetsikiotis, 2016) and supply chains (Bodkhe et al., 2020). A small number of authors have established a basis upon which to connect digital technology (e.g. social media) with social business (e.g. Daowd et al., 2020; Lanza-Cruz et al., 2018; Ashraf et al., 2019). In the latest evolutionary phase of blockchain there is an increased focus on distributed real-time ledgers and the seamless integration of smart contracts replacing paper-based agreements (Holland et al., 2018), all of which are regulated by the peer-to-peer network infrastructure. Recently, smart contracts have attracted attention due to the benefits they bring for businesses and organisations, by reducing uncertainty and improving trust and transparency in the interactions between stakeholders (e.g. Pereira et al., 2019). Despite the surge in interest in blockchain, there remains a limited understanding of whether this technology can improve the sustainability of social businesses and how

it may be applied within this context. In a recent survey of 600 executives from 15 different territories, PwC (2018) found that 84% had at least some involvement with blockchain technology. In the same vein, Gartner (2017) found that 82% of all blockchain-related activity is within the financial services sector; however, the use of blockchain is expected to grow in a number of sectors, with a potential annual revenue forecast of \$175 billion by 2025.

The term 'social business' refers to an organisational entity whose primary aim is to solve some social/environmental problem, and which uses income generating activities to sustain its operations and growth (Austin et al., 2006; Peerally et al., 2019). Extant literature has focused heavily on the tension that exists between these social and financial objectives (Moss et al., 2011). For instance, if the business pays limited attention to financial sustainability, it will fail and be unable to meet its social objectives (Siwale et al., 2021). This means that although social and environmental sustainability benefits should remain a priority for social businesses, by improving their financial sustainability, social businesses will be more likely to endure in the market, improve their social impact, and attract potential investors as they create a more financially viable profile (Scarlatia and Alemany, 2010; Smith and Besharov, 2019). Similarly, if the business becomes more preoccupied with financial performance it may neglect some of its crucial social

* Corresponding author.

E-mail address: a.devine@northumbria.ac.uk (A. Devine).

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objectives; this is known as ‘mission drift’ (Cornforth, 2014).

The mission drift debate has gained much traction within the literature, with a strong focus on how organisations balance social and economic objectives to function effectively and sustainably (Smith and Besharov, 2019). However, this assumes that financial and social objectives sit on a continuum whereby one inevitably compromises the other (Florin and Schmidt, 2011). This view, which separates ‘social’ and ‘business’ as concepts on different ends of a continuum that are ‘at odds’ (and thus need to be traded off), might lead to ambiguity and loss of trust between an organisation and its stakeholders, resulting in several issues such as loss of funding and social capital (Seanor and Meaton, 2008). These may have a detrimental impact on its sustained operation. More recently, research has pointed towards an alternative perspective: a coexistence of social and financial objectives (Muñoz and Kimmitt, 2019). This perspective enables objectives to work together more harmoniously; it also reduces tensions and improves engagement with external stakeholders, enabling social businesses to avoid mission drift. Although research has highlighted the benefits of blockchain in supporting meaningful interactions between stakeholders by improving trust and transparency and reducing uncertainty, we still know very little about the role these technological innovations might have in enabling this coexistence of financial and social objectives.

In this paper, we aim to explore how blockchain technology in the form of smart contracts can enable the development of more sustainable social businesses and support the coexistence of social and financial objectives. We propose a conceptual model for a ‘social business blockchain’ (i.e. a blockchain that is designed to help uphold the ideals of a social business). To do so, we unify the areas of social business, trust, blockchain and smart contracts, building on the principles of Yunus (2010) to stimulate a set of questions at the intersection of these four areas. In so doing, the paper makes three key contributions. First, theoretically, we build on the novel notion of social and economic logic coexistence (Muñoz and Kimmitt, 2019) to demonstrate how both objectives may work together harmoniously when facilitated by a technological agent such as a social blockchain. Second, we contribute to literature at the intersection of social business and technological innovation by showing how new technologies can be used to allow organisations to interact more effectively. Whilst most literature in this domain has only emerged recently, it principally focuses on how the technological innovations offered by social entrepreneurs meet some social and/or environmental need (Ramani et al., 2017). Thus, we respond to calls for more detailed research into the conditions under which social enterprises may become more effective (Engelke et al., 2015).

Finally, by exploring the role that blockchain technology can play in creating and supporting more sustainable social businesses (in terms of their financial sustainability but also by supporting the social and/or environmental sustainability benefits they strive to deliver), we contribute to showing the way that this technology may be further developed and utilised by social business practitioners and stakeholders. Our aim is to create a conceptual map that clearly outlines how blockchain-based smart contracts can be implemented within a social business model, to support Yunus’ principles and improve interactions and trust between stakeholders.

The paper is structured as follows. First, we present the theoretical background on social business and social entrepreneurship. Second, we explore the theoretical perspectives on trust and how they manifest in the context of blockchain and social business. Third, we provide insights into the technical elements of blockchain, before highlighting how smart contracts can be a trust intermediary between blockchain implementation and social businesses and their stakeholders. Fourth, we demonstrate how blockchain can answer the key questions that emerge from our analysis of the literature. Fifth, we conclude by presenting our conceptual model for a social business blockchain, and providing some direction for future research.

2.0. Theoretical background

2.1. Social business

The literature on social business has grown significantly in the last decade (Stephan et al., 2016). To understand the key debates in this space, we reviewed this literature to thematically unpick key concepts, ideas and current areas of contention. Following Austin et al. (2006), the literature on social businesses has broadly followed four themes: opportunity, organisational mission, resources and performance measurement.

In terms of *opportunities*, Austin et al. (2006) identified how these emerge for social businesses when markets (or governments) fail. Prior research identifies how institutional and market failures represent the sources of opportunities for social entrepreneurs (Mair and Marti, 2009). For example, the failure of most financial institutions in large parts of the developing world to represent the poorest led to the emergence of microfinance institutions, designed specifically as services for the marginalised. Although this represented the early understanding of how social ventures emerge, more recent research has looked at the symbolic judgments of social justice, in particular communities of entrepreneurs (Kimmitt and Munoz, 2018). Such a perspective is part of a more critical turn in understanding the various moral and ethical motivations of social entrepreneurs (Dey and Lehner, 2017; Tucker et al., 2019) and how complex settings are navigated to co-create opportunities (Corner and Ho, 2010).

Relatedly, a significant volume of research has sought to understand the drivers of organisational *mission*. Researchers have described social businesses as types of ‘hybrid organisations’ (Smith and Besharov, 2019). They are labelled as hybrids because of their dual mission objectives. On the one hand, their main purpose is to assist in solving some kind of social/environmental problem (e.g. reducing homelessness); on the other, they must also be market-oriented and create sufficient revenue to survive and thrive (e.g. being contracted by a local authority to deliver a social intervention with the homeless). These dual objectives are often regarded as stemming from different purpose-driven and financial logics which may not be compatible with one another (Battilana and Dorado, 2010).

A large body of research has therefore focused on trying to understand how these seemingly incompatible institutional logics can be resolved. Smith and Besharov (2019) discuss how organisations balance change processes between these dual objectives, whilst Gümüşay et al. (2020) make similar claims around ‘elasticity’ in venture adaptation. Elsewhere, research has identified the importance of developing tactics within the workforce to blend logics and carry the venture development forward (Battilana and Dorado, 2010). In short, this literature has identified how the dual objectives are managed strategically to reshape identities and elicit smoother organisational performance.

However, proactive management of these diverse drivers of organisational performance does not always occur, leading to what is regularly labelled ‘mission drift’: “a process of organizational change, where an organization diverges from its main purpose or mission” (Cornforth, 2014, p. 3). For social businesses, the most widely reported cause of mission drift is commercialisation. For example, the primary purpose of the pro-social microfinance industry is to reduce poverty through giving access to financial services. Yet these financial service organisations have also started to behave more like formal banks, focusing more on the financial bottom line as the lure of improved profits overtakes the desire for social change (Mersland and Strøm, 2010). Thus, when income takes prevalence over social purpose, mission drift is seen to be occurring.

This ties in with the third theme: *resource mobilisation*. Mission drift is widely conceived to have negative consequences for organisations, which may suffer from losses in legitimacy (Kwong et al., 2017) and trust (Milbourne and Cushman, 2013), thus weakening performance through access to financial resources (Gras and Mendoza-Abarca, 2014). Research has identified that the tensions associated with the

Table 1
Thematic analysis of social business concepts

Themes	Main Premise	Key Concepts	Key Literature Debates	Supporting Literature
Opportunity	Social businesses see market failures as opportunities for action	Opportunity development; opportunity identification	Social businesses co-create and develop opportunities collectively with stakeholders and beneficiary communities in response to market failures. Social businesses have multiple complex motivations and are not morally neutral endeavours.	Corner & Ho (2010); Mair & Marti (2009); Perrini et al. (2010); González et al. (2017).
Mission	Social businesses have a distinct focus on solving a social/ environmental problem	Empathy; sensemaking; morality Mission drift; governance Hybrid organising; institutional logics	Social businesses lose sight of their social mission when they start to grow and become more financially sustainable. Successful social businesses combine multiple institutional logics, identities, and missions that, within an organisational setting, do not conventionally complement one another.	Kimmitt & Muñoz (2018); Dey & Lehner (2017); Zahra et al. (2009); Tucker et al. (2019). Cornforth (2014); Kwong et al. (2017); Mersland & Strøm (2010). Battilana & Dorado (2010); Smith & Besharov (2019); Gümüşay et al. (2020).
Resource Mobilisation	Social businesses have limited channels for accessing resources	Resource constraints; legitimacy Impact investment	There are significant barriers in accessing finance; commercial investors have a limited understanding of the social business model. The social investment market lacks coordination, leading to supply and demand issues. Quantifying the impact of social businesses is challenging given attribution errors. Social businesses measure social impact to learn about their interventions and signal performance to investors.	Gras & Mendoza-Abarca (2014); Bugg-Levine & Emerson (2011); Chen & Harrison (2020). Scarlata et al. (2017); Gregory et al. (2012); Clarkin (2014). Lowe (2013); Lowe & Wilson (2017); Solórzano-García et al. (2019). Scarlata & Alemany (2010); Gamble & Beer (2017); Parhankangas & Renko (2017).
Performance Measurement	Social businesses measure their performance through social impact measurement	Attribution; social return on investment Learning and signalling		

mobilisation of resources (both human and financial) can delegitimise a social business, ultimately eliciting failure (Siwale et al., 2021). Therefore, mission drift is a complex concept that brings together organisational strategic decision-making and actor motivations, as well as the capacity to mobilise the necessary resources to be financially sustainable.

In contrast, some literature has emphasised the potential positive relationship between organisational mission and resource mobilisation. In the prior microfinance example, it could be suggested that improving the financial sustainability of an organisation makes it more likely to endure and offer a diverse portfolio to the financially disadvantaged. Further, social enterprises typically struggle to access finance because they signal complex messages to potential investors who have varying levels of financial and social sector expertise (Scarlata and Alemany, 2010). The impact investment market also lacks co-ordination, and investment readiness is problematic (Scarlata et al., 2017; Gregory et al., 2012; Clarkin, 2014). Thus, opportunities to exploit earned income strategies are crucial to financial viability and even form the basis for exploring new areas for social impact (Smith and Besharov, 2019).

This social impact also represents a key thread in social business research relating to *performance measurement*. Whilst traditional accounting measures are accepted in commercial entities, social impact measurement is more opaque and inherently subjective (Gamble and Beer, 2017). Furthermore, scholars have identified serious issues with attribution: it is challenging to causally tie the work of a social venture to a particular social outcome (Lowe, 2013; Lowe and Wilson, 2017). However, social impact measurement has a role in terms of organisational learning; in its absence, social ventures appear to perform more poorly (Muñoz and Kimmitt, 2019). Moreover, social impact data can act as a positive signal to potential investors and other stakeholders (Gamble and Beer, 2017; Parhankangas and Renko, 2017).

In summary, prior research on social businesses broadly fits into these domains, with a variety of underlying theoretical constructs and debates; these are summarised in Table 1. In particular, the literature gives significant attention to the mission drift concept, but without fully acknowledging some key assumptions. One consistent theme across research is the relevance of the ‘balance’ between social and economic dimensions.

Florin and Schmidt (2011) pose a continuum of social and economic objectives under the notion that moving too close to the social side will produce economic vulnerabilities, whilst moving too close to economic

objectives will distract from the core purpose of the venture; one must balance the scales rather than tip them. Thus, ‘balanced growth’ through mission interdependencies becomes an important strategy for retaining organisational harmony and performance (Siebold et al., 2019). This also sharpens the focus on another issue with research into mission drift, which is the assumed intentionality behind it. As Muñoz and Kimmitt (2019) highlight, the micro-foundations of the entrepreneurial process interact with other strategically focused approaches. The entrepreneurial process is understood as decision-making under conditions of uncertainty, meaning that the creation and direction of social ventures may not be clear even to the social entrepreneur (Zahra et al., 2009). When the venture proposition unfolds, as the entrepreneur receives new information (Servantie and Rispal, 2018), they gradually make sense of what constitutes a social problem, and the necessary business model needed (to be designed) to solve it. As such, the ‘main mission’ or ‘purpose’ of a social business, as outlined by Cornforth (2014), may be more opaque in some contexts than in others. For social businesses, mission and the underlying business model design are iteratively co-created to work together.

However, as Muñoz and Kimmitt (2019) argue, social and economic objectives are not mutually exclusive. Both can operate at once as strategic foci of the venture to enable competitive advantage, and one focus does not necessarily compromise the other; that is, mission drift is not inevitable. Thus, if we are to develop a more sophisticated understanding of mission drift or mission ‘balance’, we ought to consider a holistic approach that embraces *opportunity*, *mission*, *resources* and *performance measurement* simultaneously.

Whilst our thematic analysis of the evolution of the social business concept identifies these key areas of debate, the absence of facilitating technology within the discussion is highly problematic. In particular, integrating this with our understanding of blockchain technology will help to enlighten the debate and facilitate our understanding of technology’s role in the coexistence, rather than ‘balance’ or ‘drift’, of social and economic objectives.

In this paper, we take the view that this is a relational process built by trust, which may be elicited by blockchain technology. We draw upon Yunus’ (2010) seven social business principles (see Table 2) as the basis for our model. Although several concepts and frameworks have been developed to communicate a business focus on both financial and social objectives (e.g. non-profit organisations and CSR), Yunus’ Social Business Principles have been selected as the basis of our model as they

Table 2
Yunus' seven principles and insights

Yunus' Principles (Yunus, 2010)	
1.	Business objective will be to overcome poverty, or one or more problems (e.g. education, health, technology access and environment) which threaten people and society; not profit maximisation.
2.	The company will attain financial and economic sustainability.
3.	Investors get back their investment amount only. No dividend is given beyond the return of the original investment.
4.	When the investment amount is paid back, profit stays with the company for expansion and improvement.
5.	The company will be environmentally conscious.
6.	Workforce gets market wage with better-than-standard working conditions.
7.	...Do it with joy!!!

provide a specific set of defining criteria, combining both a macro- and micro-economic view of how these two objectives coexist in such an organisation (Ballesteros-Sola, 2015; Grove and Berg, 2014). Based on our examination of this literature, we will now discuss the role of trust in binding social and economic objectives.

2.2. Trust in social business

The 'traditional' view, which considers social businesses as balancing social and financial objectives, creates an interesting paradox: as social businesses try to improve their financial sustainability, moving towards the 'financial' end of the continuum, they compromise their focus on their social cause. This, however, may worsen their financial situation, as the stakeholders that support and fund their operations (e.g. through donations) will not see the social impact they expect their investment to make (Florin and Schmidt, 2011), which may result in loss of financial support. As such, a more contemporary approach to social businesses may be required that supports the coexistence of the two types of objectives, without one compromising the other.

This approach highlights the importance of trust in developing sustainable social business models. On the one hand, social businesses need to trust that if they focus on achieving their social goals, stakeholders will support their cause financially. On the other hand, stakeholders need to trust that their investments in social businesses contribute to the achievement of both financial and social objectives, to make a difference to beneficiaries. To understand how trust can help to facilitate the coexistence of social and economic logics – that is, the trust relationship between stakeholders (individuals) and the social business (organisation) – it is important to explore the theoretical perspectives on trust.

Morgan and Hunt (1994, p. 23) define trust as "existing when one party has confidence in an exchange partner's reliability and integrity". They suggest that the integrity of the 'trustworthy' party will be associated with qualities such as "consistent, competent, honest, fair, responsible, helpful and benevolent". Pirson and Malhotra (2011) highlight the distinction between interpersonal trust (i.e. the extent to which individuals trust other individuals along relevant trustworthiness dimensions), and organisational trust (i.e. the extent to which individuals trust an organisation). Furthermore, there is much debate in the literature about organisational and institutional trust (David et al., 2019; Ellonen et al., 2008). For the purposes of this article, we focus on

social businesses as organisations (i.e. systematic collections of people working together for a desired end with a common identity), rather than the more abstract notion of 'an institution', which may or may not include an organisation.

Although the concept of trust has gained popularity in several business-related disciplines, including marketing and consumer behaviour, authors have suggested that in the context of innovation and technology (in organisations), there are two main areas of debate: trust in the technology and trust in the innovating organisation (Hengstler et al., 2016). Pirson and Malhotra (2011, p. 1089) highlight that trust in organisations "entails the willingness of individuals (customers, employees, etc.) to accept vulnerability to the actions of an organisation based on positive expectations". Further to this, Pirson and Malhotra (2011, p. 1091) explored organisational trust through the dimensions of depth (Sheppard and Sherman, 1998) and locus (Schoorman, 2007) (i.e. "the stakeholder's position (internal versus external) vis-à-vis the organization"). Pirson and Malhotra's study extended the three traditional dimensions of trust – ability, benevolence and integrity (Mayer et al., 1995) – adding three new dimensions. These were transparency, identification, managerial competence and technical competence (the latter two are bifurcated from the original dimension of 'ability') (see Table 3).

Extant research highlights trust as an essential component for social businesses. It can contribute to the development and operationalisation of effective social business models, help social businesses attract and maintain funding and sponsorships, and enable them to achieve their social and economic objectives (e.g. Jabłoński and Jabłoński, 2019; Mukkamala et al., 2018). As social businesses rely on funds from individuals, governments and/or organisations (i.e. social investors) for their operations, building trust with these investors is vital to ensure consistent funding that will enable them to support their projects (Mukkamala et al., 2018). As stakeholders desire their investments to be impactful and benefit society, they look for mechanisms that provide them with trustworthy information and offer them certainty regarding their investment (Rickert, 2017).

Curtis et al. (2010) explain that trust is an essential non-financial resource for social businesses from the very early stage of business development (start-up). The authors support the idea that trust between social businesses and stakeholders precedes the actual performance of the social business, as in many cases investors and other stakeholders are required to trust and support the social business prior to it having a

Table 3
-Pirson and Malhotra's (2011) Dimensions of Trust

Dimensions of trust	Supporting literature	Description
Managerial competence (bifurcated from Ability)	Chawla (2020); Pirson & Malhotra (2011)	Organisational abilities denoting strategic vision and decision-making. Reciprocal faith in others to work towards team goals rather than narrow or self-interested agendas.
Technical competence (bifurcated from Ability)	Chawla (2020); Pirson & Malhotra (2011)	Organisational ability to deliver superior products and services. Reciprocal faith in team members to successfully complete the tasks in their area of expertise.
Benevolence	Mayer et al. (1995)	Considers if the trustee exhibits goodwill toward the trustor and is concerned for the trustor's wellbeing.
Integrity	Mayer et al. (1995)	Gauges whether a trustee is perceived as forthcoming, honest, and of requisite moral character.
Transparency	Mishra (1996); Tschannen-Moran (2000)	The perceived willingness to share trust-relevant information with vulnerable stakeholders.
Identification	Lewicki & Bunker (1996); Sitkin & Roth (1993)	Concerned with the understanding and internalisation of the interests and intentions of the other party, based on shared values and commitment.

demonstrable track record in achieving its socioeconomic objectives. Nevertheless, social businesses also need to ensure that funding remains commensurate with the nature and scale of their project activity; as such, trust can play an important role in the sustainability and long-term success of social businesses (Mukkamala et al., 2018). However, a lack of transparency – a common issue in sectors where external funding and donations are important, such as charities and social business – can limit trust and make the process of investor recruitment and funding generation even more challenging (Rickert, 2017).

In addition to attracting investors and funding, trust can support the development of more meaningful relationships between stakeholders, exceeding usual contractual and financial relationships. This can further contribute to the development of sustainable social businesses, as studies suggest that trust (alongside a number of other factors such as cooperation and community integration) can support mutually beneficial relationships between multiple stakeholders and improve stakeholder satisfaction and value (Curtis et al., 2010; Jablonski and Jablonski, 2019; Haigh and Hoffman, 2012). However, as social businesses grow and expand in order to increase the impact of their activities, this can create issues with trust, as the impact of factors such as local ties, communal trust-building, and business values and vision may diminish with size (Haigh and Hoffman, 2012). This can have a detrimental impact, particularly for organisations that depend for their success on the trust built through local connections, where beneficiary engagement and an ethos of co-creation are central to understanding the social problem at hand (Kimmitt and Muñoz, 2018).

From the above it can be seen that recruiting, retaining and developing strong relationships with stakeholders (e.g. beneficiaries, investors, employees, community members, suppliers) is essential to ensure consistent funding and the sustainability of a social business. Trust can play a key role in the value that social businesses create, as it will have a direct impact on the capability of the social business to perform its activities to achieve its objectives. Despite the importance of trust for social businesses, currently there are limited mechanisms in place for social businesses to encourage trust in the system. As most social businesses, unlike companies or governments, lack the financial means and resources to build the required trust through resource-intensive approaches, they need to find alternative methods to improve and communicate trust. Nevertheless, despite the important role of trust in the sustainability and effectiveness of social businesses and the increasing use of technology to support different business models, there is no extensive research on how technology can improve trust as a crucial component of social business. The current research will aim to fill this gap.

Recent increases in the use of machine learning, blockchain, artificial intelligence and data infrastructure are concomitant with an increased reliance on computational algorithms to make decisions (Lee, 2018). Lustig and Nardi (2015) posit that increased use of blockchain and cryptocurrency (such as Bitcoin) has led to the emergence of a new kind of trust: algorithmic trust. Chawla (2020, p. 5) defines algorithmic trust as that which “pervades the protocol, and application layers of a blockchain, and focuses on the technical competence, and transparency dimensions of trust”.

With these new types of technology, users must move away from traditional forms of trust, giving way to algorithms and software to make decisions (Chawla, 2020). Users must also be able to trust the social context within which the code that forms the algorithms is constructed and maintained (i.e. the code writers/architects) (Hawlitschek et al., 2018; Lustig and Nardi, 2015). This is augmented by the arcane technical nature of coding, resulting in very few people being able to understand the algorithms that underpin blockchains (Kellogg et al., 2020). This is supported by Kizilcec (2016), who highlights the link between transparency and trust, and particularly the need to support complex algorithms with explanations, so that users who are not au fait with the technicalities are able to assimilate key information.

Chawla (2020, p. 4) highlights that the notion of trust in relation to

blockchain design is “unique from the perspectives of traditional organisational theories [such as Agency Theory and Resource Based View] thus, trust [in blockchain] is embodied differently”. While previous studies regarding trust and social business have explored multiple traditional theories (Dacin et al., 2010; Smith et al., 2013), such as Stewardship Theory (e.g. Ballesteros-Sola, 2015), Stakeholder Theory (e.g. Cooney, 2012; Greenwood and Van Buren III, 2010) and Institutional Theory (e.g. Pache and Santos, 2010), we build upon Chawla (2020) to demonstrate how certain dimensions of trust, focused on technical competence and transparency, can enable the social and economic logics of social ventures to coexist.

2.3. The Blockchain

The blockchain has evolved from storing purely financial transactions to anything of value. This includes supply chain records (Queiroz and Wamba, 2019), residency information (Sullivan and Burger, 2017) and in some cases governance data (Hastig and Sodhi, 2020). Schlecht et al. (2021, p. 2) define a blockchain as a shared resource on a “decentralised network of computers each based on mathematics and advanced cryptography, where each transaction can be verified by the entire network”. Thus, the blockchain is a permanent, incorruptible decentralised digital ledger (Jabbar and Dani, 2020).

It is decentralisation that differentiates the blockchain from traditional relational or big data systems (Jabbar et al., 2019). In such a solution, control is delegated to individual computers (nodes) that are tasked with validating and verifying transactions before they are added to the blockchain network. Each node keeps a copy of the ledger which is continuously synchronised with the rest of the computers in the network every time a change takes place (Ankalkoti and Santhosh, 2017). This approach has multiple advantages. First, it removes a single point of failure, so if the network is attacked or a node is out of action, the network is still resilient and continues to function. Second, it stops any unauthorised transactions unless all nodes agree and allows control to be shared across the network. These key elements play a significant role in creating a secure permanent data solution as all transactions are first verified amongst the nodes, before they are added to the blockchain network (Li et al., 2019). This innovative approach to data storage and verification can remove reliance on intermediaries and ensure that the transfer of goods and services within this context is quick, reliable, authentic and efficient (Yang et al., 2019).

Thus, the notion that no specific individual or government entity has control over a blockchain creates many opportunities for business growth within the forms of new business and revenue models, innovative software platforms and new approaches to how data is governed, managed and used (Sternberg et al., 2020). Within the blockchain, data is bundled into blocks which are packaged based on aspects of speed, frequency and complexity (Sharples, 2002). Data are compiled into a hash and this is stored in the blockchain. Any potential changes to the data create a new hash while also linking to the previous block, hence creating a change process and a chain of transactions.

Fig. 1 outlines how data are stored and hashes are created. This is a fundamental process: all blockchain transactions must follow these rules before they can be verified and stored. As highlighted in the illustration, each new block creation has a direct link with the previous block, providing a history of changes and transactions. In order for this to be achieved successfully, Jabbar and Dani (2020) outline five significant steps: (1) a call must be made to the blockchain; (2) the proposed transaction is packaged as a block ready for distribution to the nodes; (3) the block is then distributed; (4) the miners complete the necessary steps to approve the transaction; and (5) the verified block is added to the blockchain, and a hash is generated that connects the current block to the previous block, creating a chain.

Hence, the five steps highlight that while there is a structure to the blockchain, there is also a flexible resilience, allowing for the creation of an incorruptible ledger where transactions cannot be manipulated or

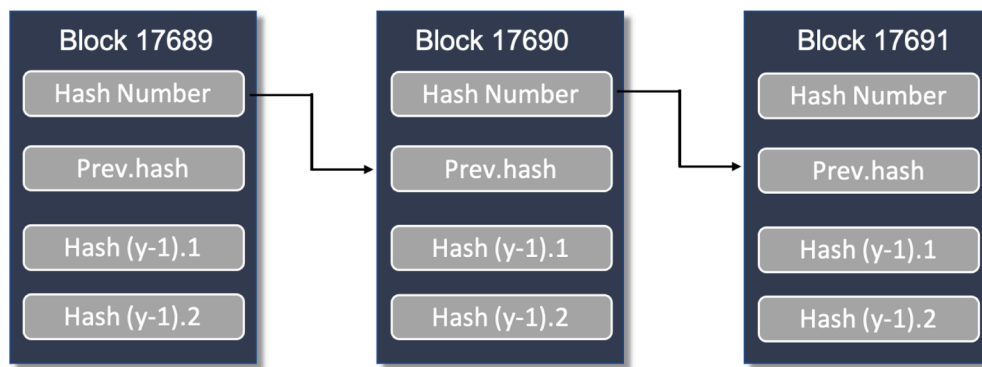


Fig. 1. Data storage and hash creation in a blockchain

edited without the permission of other users in the network (Jabbar and Dani, 2020). Any such attempt to make changes starts a 'chain reaction', where a new data hash is created and appended to the preceding record, and this change is transmitted to the rest of the nodes in the network, which update ledgers accordingly (Yeoh, 2017).

With respect to blockchain and the dimensions of trust, Chawla (2020, p. 4) suggests that there appears to be an "amplification of the trust dimensions of ability [technical competence] and transparency". In our proposed application of blockchain to social businesses, the amplification of these dimensions seems logical because both the trustees' (party to be trusted: blockchain developers and social businesses) ability to create algorithms, and the trustors' (stakeholders) ability to evaluate and understand them, are vital. This is supported by Bachmann's (2003) notion of systems trust which refers to the trust individual stakeholders have in the functioning and reliability of systems. According to Hosmer (1995), this kind of trust is process-based and tied to a record of past operation; this is particularly poignant given the nature of blockchain design (i.e. an incorruptible ledger).

While algorithmic trust focuses on the trust that stakeholders are required to have in the technical elements of blockchain, the social/organisational aspects also require consideration (Chawla, 2020). Greenwood and Van Buren III (2010, p. 425) explain that "trust in the organization-stakeholder relationship, and the trustworthiness of the organization to that relationship, is fundamental to the moral treatment of stakeholders". The authors postulate a new form of collective trust, namely organisational trust, which is concomitant with the argument that an organisation is a moral agent (Collier, 1998; Moore, 1999) with a moral identity and the capacity to be virtuous (Moore, 2005). Chawla (2020) presents a model which highlights the social layers at the 'top' of the blockchain stack, as a part of organisational trust. This layer deals with the humans that develop the blockchain code; as such it is dominated by the dimensions of trust, such as ability, benevolence, integrity, transparency and identification.

While both Chawla (2020) and Pirson and Malhotra (2011) agree that the social layer is the enabler of the technological layers, Chawla (2020, p. 4) argues that the type of blockchain and range of stakeholders will determine the overall balance of the trust dimensions. However, it is clear within the blockchain, the focus is shifted "from an organizational, and legal regime to one that is largely algorithmic, and an associated social layer that propagates, and maintains the blockchain" (Chawla, 2020, p. 5).

2.4. Smart contracts as a trust intermediary

Smart contracts are a digital construct based around the notion of codified promises, rules and regulations (Antonopoulos and Wood, 2018). These contracts are software code which can be programmed to execute certain actions based on specific conditions being met (Jabbar and Dani, 2020). Research by Dolgui et al. (2019) proposes that smart

contracts can remove reliance on intermediaries within organisational transactions (Christidis and Devetsikiotis, 2016). Many pilot studies surrounding smart contracts and blockchain are currently underway. For example, in Korea, the KCS (Korea Customs Service) is investigating the use of smart contracts to embed and execute custom processes for imports and exports (WCO News, 2021). In Rotterdam, a microgrid electricity platform developed by S&P Global Platts and Blocklab is being utilised to actively trade renewable energy derived from solar and battery storage; this is claimed to be the first high-frequency decentralised energy market (Smart Energy International, 2020). Thus, in this context, the smart contracts act as the intermediary and play a crucial role in enforcing agreements between two parties. Therefore, as part of a technical solution, the blockchain is the permanent data store, and for smart contracts to be effective and neutral they must be deployed to the blockchain and synchronised to all nodes (Castellanos et al., 2017).

Thus, smart contracts create endless opportunities for the codification of rules and regulations that can support the development and operations of more sustainable social businesses. The codification process allows for self-enforcing smart contracts, which are based on data inputs that can occur in real time depending on the processing approach (Jabbar et al., 2019). This, however, creates its own challenges, as a smart contract needs to be scrutinised by all parties before it is appended to the blockchain. An oblivious approach to agreements at this stage can be very expensive and difficult to modify at a later date (Pereira et al., 2019).

3.0. Discussion: addressing the emerging questions through blockchain

Existing research has discussed some of the key components of blockchain for social businesses. For instance, Mukkamala et al. (2018) discuss blockchain technology as an opportunity built on trust, transparency, anonymity, privacy, decentralisation and auditability. They explore the suitability of blockchain technology for addressing the problems of social businesses; however, the use of smart contracts to alleviate and implement the core components is not explored in any depth.

Table 4 provides an overview of the seven principles and the emergent questions that our blockchain model will address in order to build trust and demonstrate how the social and economic logics of social ventures can coexist. We highlight six emergent questions elicited from the work of Yunus (2010) to aid our conceptualisation of how blockchain technology, through the use of smart contracts, can support the coexistence of the social and economic logics of social ventures. In this section, we will answer the emergent questions to demonstrate how blockchain design, combined with relevant elements of trust, can provide fresh insights into the use of blockchain in social ventures. Essentially, all decisions are made within the network by verified members and all decisions are final. When coupled with smart contracts there is a

Table 4
Yunus' Principles and emergent Blockchain Questions

Yunus' Principle (Yunus, 2010)	Current Insights	Supporting Literature	Emerging Questions
Business objective will be to overcome poverty, or one or more problems (such as education, health, technology access, and environment) which threaten people and society; not profit maximisation.	⇒ <i>Social enterprises can be profit-oriented, but the primary focus is the solution to a social/environmental problem.</i>	Austin et al. (2006) Corner & Ho (2010) Kimmitt & Muñoz (2018) Zahra et al. (2009)	How can blockchain help ensure that social ventures meet their social objectives?
Financial and economic sustainability.	⇒ <i>Social enterprises aim to 'balance' financial sustainability with their core social mission as hybrid forms.</i>	Moss et al. (2011) Battilana & Dorado (2010) Smith & Besharov (2019) Muñoz & Kimmitt (2019) Gümüşay et al. (2020)	How can blockchain help ensure that social ventures meet their financial objectives?
Investors get back their investment amount only. No dividend is given beyond the return of the original investment.	⇒ <i>Social investment initiates scaling of business models and social interventions.</i> ⇒ <i>Social investors help to shape venture goals and mission.</i>	Scarlata et al. (2012) Chen & Harrison (2020) Bugg-Levine & Emerson (2011) Scarlata et al. (2017) Scarlata & Alemany (2010) Cornforth (2014) Kwong et al. (2017) Mersland & Strøm (2010)	How can blockchain help facilitate fair and effective relationships between investors and social ventures?
When the investment amount is paid back, profit stays with the company for expansion and improvement.	⇒ <i>Social venture growth can produce issues of 'mission drift' between core aims and growth ambitions.</i>	Perrini et al. (2010) Mair & Marti (2009) Gamble & Beer (2017) Austin et al. (2006)	How can blockchain ensure that investment for growth does not lead to mission drift?
The company will be environmentally conscious.	⇒ <i>The focus of social enterprises is the solution of a social/environmental problem.</i>	Zahra et al. (2009) Boluk & Mottiar (2014) Tucker et al. (2019) Zahra et al. (2009) Kimmitt & Muñoz (2018) Dey & Lehner (2017)	How can blockchain ensure that organisational goals and objectives are congruent with an environmentally conscious mindset?
Workforce gets market wage with better-than-standard working conditions.	⇒ <i>Social enterprises blend paid working conditions with voluntary posts.</i>		
...Do it with joy!!!	⇒ <i>Social entrepreneurs hold noble motives, driven by empathy and desire for social change.</i> ⇒ <i>Social entrepreneurs hold controversial motives, driven by ego and a desire for structural change.</i>		How can blockchain support meaningful interactions that take into account entrepreneurial motivation and hold entrepreneurs' actions to account?

component of Artificial Intelligence (AI) which can govern these relationships and transactions (Jabbar and Dani, 2020). The advantage of such an approach within social ventures is that all objectives can be mutually agreed upon by all members; this is decentralisation (Wang et al., 2018). In addition, future changes cannot be made without the explicit acknowledgement of the members (Hastig and Sodhi, 2020). From a social business perspective, this aspect of transparency can ensure that social ventures continue to work towards agreed social objectives. If social ventures veer away from original pre-agreed objectives and KPIs, smart contracts can be used to enforce the original rules (Castellanos et al., 2017).

Traditionally, trying to ensure that social ventures meet their social objectives involves a significant amount of trust being placed by the trustors (stakeholders) in the trustee (the organisation / social business). This has an impact on the quality of the relationships between stakeholders (Pirson and Malhotra, 2011). However, the utilisation of blockchain technology means stakeholders could reduce the amount of

trust they have to place in the social business, instead shifting it to the technology underpinning the blockchain.

This highlights the increased focus on technical ability (algorithmic trust) and transparency (Chawla, 2020), replacing more traditional interpersonal and interorganisational trust.

The mutual agreement of the objectives located within the blockchain can have two main trust-related benefits. First, a mutual learning process between social ventures (trustee) and their beneficiaries (trustor) has been identified as being crucial to social venturing that reflects local realities and ultimately produces community-led social solutions (Kimmitt and Muñoz, 2018). For example, the absence of this trust has been shown to lead to deleterious consequences when attempting to implement clean water technologies without accounting for local cultural dynamics (Saunders and Borland, 2013). Second, mutually agreed social objectives are seen as central to productive entrepreneur-investor relationships whereby investors provide value-added services and support social ventures, allowing them

collectively to achieve the set and pre-agreed social objectives (Di Lorenzo and Scarlata, 2019). In short, this allows for a check against any potential mission drift as defined by the venture, its beneficiaries and its financiers.

3.1. How can blockchain help ensure that social ventures meet their financial objectives?

Blockchain is by its very definition a distributed ledger (Mukkamala et al., 2018) designed and developed for use with the first cryptocurrency – Bitcoin (Zachariadis et al., 2019). It has been viewed and utilised as a very flexible tool with a number of use case scenarios. Thus far it has been utilised within Fintech (Mori, 2016), supply chains (Jabbar and Dani, 2020) and governance (Sullivan and Burger, 2017). Therefore, it has evolved from a tool with the primary purpose of storing Bitcoin transactions to one that can store anything of value.

Within a social venture, the blockchain opens new avenues of finance, storage and democratisation of objectives. This allows for new use cases in creating innovative and forward-looking social ventures which draw upon the financial components of the blockchain (Woodside et al., 2017). As an arbiter of trust (Kamble et al., 2020), the blockchain creates a transparent approach (Kizilcec, 2016) in terms of a social venture's financial objectives and how well they are being met. The development of smart contracts stored in the blockchain supports the challenges that are faced over the technical transparency of blockchain, as discussed by Kellogg et al. (2020) and Kizilcec (2016), as the contracts enable transparent communication of data across all stakeholders, improving trust and discouraging potential mission drift. If a social venture fails to meet its financial obligations based on pre-agreed criteria, the transparency of the blockchain (through the smart contracts) notifies all stakeholders and adjustments can be made (Prashar et al., 2020).

In this context, mission drift can occur if the financial situation of the social venture deteriorates to the extent that it can no longer offer adequately its product/services. Research has identified how social entrepreneurs can become so fixated on growth to mimic corporate structures that it undermines their core purpose and leads to failure (Siwale et al., 2021). In addition, the presence of investors has been shown to push an 'investment logic' that tends to outweigh the pursuit of a social mission (Castellas et al., 2018). The benefit of blockchain in the context of financial objectives is to allow for the pre-agreed financial conditions to coexist harmoniously with the social objectives (i.e. the mission).

3.2. How can blockchain facilitate relationships between investors and social ventures?

Early research and blockchain adopters have highlighted the importance of a tamperproof system in creating trust in business transactions. Schmidt and Wagner (2019) argue that the role of the blockchain eliminates the need for trusted third parties. Thus, the blockchain is primarily used and viewed as a permanent storage mechanism for all transactions of value (Jabbar and Dani, 2020). Some blockchain researchers (e.g. Roeck et al., 2019) define it as an 'incorruptible distributed ledger', immune from unofficial tampering due to the 'consensus-based' algorithm. Some researchers argue that in certain industries there is significant disruption because the blockchain removes many trust-related issues (Kamble et al., 2020). Building from this, we argue that the blockchain has significant potential to facilitate productive relationships between investors and social ventures. The use of technology means that the trust relationship, traditionally between investor and social business, will shift to the investor and the blockchain. It overcomes the issue articulated by Greenwood and Van Buren III (2010, p. 425) whereby "low-power dependent stakeholders have no alternative, in the absence of external constraints of self-interested behaviour but to rely on the trustworthiness of the organization". The

'alternative' in this case is the blockchain, which, by virtue of its decentralised nature, means that the investor no longer needs to worry about the risk of decisions being made which may undermine their investment.

The use of the blockchain adds an additional layer of trust and removes the need for third parties (Roeck et al., 2019). This creates a direct line between participants, embedding trust at the start of any relationship (Yang et al., 2019) and removing concerns that stakeholders may have about some organisations' lack of moral decision-making. This is even more important in social businesses where the social and economic logics are required to coexist (Ebrahim et al., 2014), and it aids in preventing mission drift (Cornforth, 2014). Additionally, by removing third parties, the number of stakeholders involved is reduced, which can improve trust in relationships and avoid legitimacy and governance challenges (Ebrahim et al., 2014). This whole process can be managed in real time through the use of smart contracts to govern the rules agreed between investors and the social venture (Jabbar et al., 2019).

3.3. How can blockchain ensure that organisational goals and objectives are congruent with an environmentally conscious mindset?

The blockchain is advantageous for many businesses, mainly due to transparent data sharing and efficiency in relation to business processes and costs (Hasan et al., 2019). This paper has discussed how the transparency of blockchain systems, and their inherent trust-based mechanisms, can help to remove duplicate support services, which can help organisations save resources and improve environmental sustainability. The environmental impact of blockchain has been severely criticised (e.g. the high energy consumption required to mine cryptocurrencies) (Vranken, 2017). However, extant research has highlighted the potential of blockchain technology, and more specifically smart contracts, to support energy-efficient transactions (Esmailian et al., 2020). This is due to the reduced resources required for gathering, processing and sharing information, thus creating a more sustainable ecosystem for interactions between stakeholders (e.g. Dal Mas et al., 2020; Salmerón-Manzano and Manzano-Agugliaro, 2019).

Within a social business scenario, the blockchain can support more resource-efficient transactions and ensure that organisational goals and objectives are in constant alignment with an environmentally conscious mindset. The implementation and development of smart contracts can monitor and store real-time data which is related to the organisation's goals and objectives (e.g. information relating to pollution, environmental degradation and carbon). The real-time nature of the data collection and analysis means that decisions can be made efficiently and instantaneously (Bai and Sarkis, 2020; Jabbar et al., 2019), resulting in cost and efficiency savings that can be reinvested into the social enterprise.

3.4. How can blockchain ensure that investment for growth does not lead to mission drift?

Al Taji and Bengo (2019) argue that social ventures face unexpected challenges when they are based on new technology. Technologies such as the blockchain create an additional dimension to social ventures, leading to new funding areas and building on social and commercial aspects. This opens up new areas of research and new opportunities for growth (Du et al., 2019). However, while the blockchain may create an additional layer of complexity, it also ensures that new investment opportunities arise while simultaneously removing the danger of mission drift.

It could be argued that the mere creation of a decentralised blockchain, which draws upon smart contracts to reach mutually agreed-upon principles or functions (between social businesses and stakeholders), reduces the chance of mission drift. The blockchain challenges the traditional issue with mission drift, whereby social businesses must

Table 5
Smart contracts alongside the Seven Principles

Smart contract function	Social business principle	Function purpose within social business
SC 01	Principle 1 – [P1]	Monitor the tensions between social and financial objectives.
SC 02	Principle 2 – [P2]	Balance financial sustainability with real-time data to ensure objectives are met.
SC 03	Principle 3 – [P3]	Contract monitors relationship objectives. Pre-agreed conditions which govern the relationship can be monitored in real time.
SC 04	Principle 4 – [P4]	Smart contracts are designed for financial transactions. With this contract, social businesses can ensure that investment supports growth based on agreed objectives.
SC 05	Principle 5 – [P5]	Using environmental benchmarks, this smart contract can monitor and implement rules based on decisions made.
SC 06	Principle 6 – [P6]	A blockchain can ensure that no decision is made against the wishes of stakeholders. Smart contracts can monitor all decisions and blockchain design can stop non-stakeholder decisions.
SC 07	Principle 7 – [P7]	Monitor all smart contracts to validate all transactions.

balance their conflicting social and economic logics on a continuum, whereby one can compromise the other (Florin and Schmidt, 2011). The fact that stakeholders and social businesses must pre-agree the principles that are entered into the (permanent) blockchain means that the ‘balancing’ of social and economic logics is no longer a subjective phenomenon. Rather, the objective nature of the blockchain ensures (through the peer network) that the mutually agreed-upon principles are upheld by the social business, thus providing a way to operationalise the notion of logic coexistence (Muñoz and Kimmitt, 2019). This is particularly relevant for social businesses, which may lose their initial identities as they grow (Zahra et al., 2009).

3.5. How can blockchain help to hold the actions of social entrepreneurs to account?

As blockchain is a permanent data store, where all decisions and transactions are held (Biswas and Gupta, 2019), it is open and transparent and lends itself to an environment where actions of individuals need to be held to account. Larios-Hernández (2017) argues that for the majority of social ventures and social entrepreneurs, informal peer-to-peer practice is customary, and decisions are often made with verbal agreements so that much emphasis is placed on trust.

In this context the potential to hold social entrepreneurs to account diminishes rapidly and decisions which have been agreed cannot easily be enforced. Here, smart contracts can build context around decisions and how they have evolved and can enforce key decisions (based on pre-agreed rules) (Jabbar et al., 2019). This will also hold social entrepreneurs to account, providing a new and transparent way of working, supporting meaningful relationships within the system, and enhancing trust between stakeholders. For example, prior research has indicated that social entrepreneurs who are outsiders or ‘foreigners’ to the community in which they intervene may cause more harm than good (Kimmitt and Muñoz, 2018; Tucker and Croom, 2020). This is partially driven by their egoistic behaviour but also their poor judgment of complex social settings (Dey and Lehner, 2017). As smart contracts are able to demonstrate data from beneficiaries concerning whether and how they are making a social/environmental difference, they hold the potential to mitigate these issues.

4.0. A model for a social business blockchain

One of the key concepts and discussions of this paper is the investigation of smart contracts as a means of codifying the principles of a social business (Yunus et al., 2010). To achieve this aim, there are two clear areas which need to be bridged: the technical aspects and the social business components. The configuration of the stack defines the environment in which the smart contracts are stored and the subsequent execution of transactions. In the creation of the social business blockchain, we propose for a number of reasons that the infrastructure should be based on a public blockchain. First, Ethereum is an open-source, free blockchain platform which makes our proposed structure easy to reproduce (Bhargavan et al., 2016) and adheres to the principles of a

social enterprise. Second, the most popular blockchain platforms that are currently being trialled by industry ‘blue chip’ companies are based on the Ethereum public blockchain (Forbes, 2019).

Within a social business scenario, specific business objectives can be codified into a blockchain scenario. Our proposed model, however, requires stakeholders to alter their trust relationships with social businesses. Instead of placing trust in the social businesses to uphold the balance of social and economic logics, stakeholders are required to trust the technology that underpins the blockchain, and to codify their expectations into smart contracts. Notably, this relates to trust in technical ability (or algorithmic trust) and transparency. In tandem, it requires stakeholders to place trust in the individuals responsible for the technical elements of the blockchain (i.e. the social layer). This would be achieved by enhancing dimensions of trust such as benevolence, integrity, transparency and identification (Chawla, 2020; Pirson and Malhotra, 2011). For example, integrity would enable stakeholders to gauge whether an individual is forthcoming, honest and of appropriate moral character (Mayer et al. 1995) to design a blockchain that upholds the ideals of a social business. The identification dimension can reassure stakeholders about value alignment and commitment to the principles of social business. As part of this codification process, we create seven smart contracts in response to the emerging questions identified earlier in the paper (see Table 5).

In Table 5, we outline the basic logic which will govern our social business blockchain. Each smart contract has a clear role and is tasked with monitoring the conditions around each principle. This will be based on pre-agreed criteria as illustrated in Fig. 2 below. In our model all decisions are constantly checked in real time, and every decision is recorded. Each principle is linked to a specific contract and any anomalies can be tracked to a specific issue or principle.

In our conceptualisation of a social business blockchain, we have specifically noted the role of trust in the interactions between the social business, its stakeholders and smart contracts, and how the systematisation of checking conditions (i.e. rejection or execution) can both elicit and impede trust. Our model highlights a ‘triangular’ trust relationship in a social business blockchain, between the social business, its stakeholders and the smart contracts.

Introduction of smart contracts into the typical relationship between social business and stakeholder challenges the traditional issue surrounding stakeholders: that they “have no alternative, in the absence of external constraints of self-interested behaviour but to rely on the trustworthiness of the organization” (Greenwood and Van Buren III, 2010, p. 425). Smart contracts (and the blockchain) offer ‘the alternative’: to shift the trust, traditionally placed with the social businesses (to execute decisions on behalf of stakeholders), towards the technology and those that create it (i.e. balancing algorithmic trust and organisational trust). As our model shows, stakeholders still have a relationship with the social business, as would be expected, in achieving the coexistence of social and economic logics. More simply, it is expected that the stakeholders and the social businesses will define the parameters for the social business blockchain together (in conjunction with the technology experts who design the blockchain).

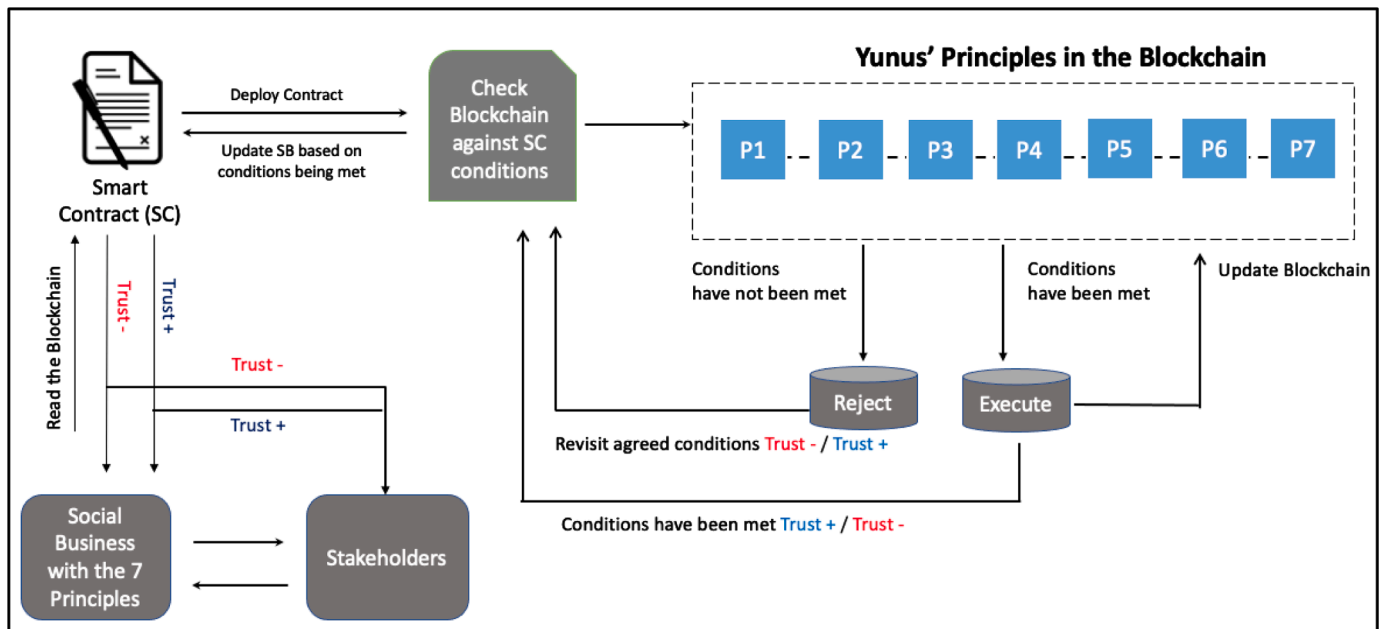


Fig. 2. A social business blockchain framework

Our model also highlights how both the ‘reject’ and ‘execute’ functions in relation to conditions in the blockchain can enhance and reduce trust. We suggest that when conditions are wrongly rejected from the blockchain, this could lead stakeholders to have reduced trust in the system as a result of the principles being poorly constructed (albeit that they would have contributed to this). However, rejection may also increase trust, as it demonstrates transparency when a condition is not being met, indicating that the technology is working and leading to enhanced algorithmic trust. Similarly, it could be argued that when conditions are executed, trust can be built (i.e. the technology is operational and working), resulting in stakeholders feeling confident that they no longer have to rely on the social business to execute decisions on their behalf. In the same vein, continuous execution of conditions (without any rejections) may lead stakeholders to question if the system is functioning correctly, as continuous execution of contracts is rare in a blockchain scenario. Fig. 2 advances our knowledge of blockchain and outlines a first use case within a social business environment. This innovative use of blockchain opens multiple business use cases.

5.0. Conclusion

5.1. Overview

In this paper, we set out to integrate emerging research on blockchain and smart contracts with the social business literature with the purpose of building a conceptual social business blockchain. To provide a theoretical outline for doing this, we marry Yunus’ (2010) principles of social business with prior empirical research in this area. We further conceptualise trust as being the principal mechanism to allow social and economic business objectives to coexist through blockchain technology. In so doing, we make three contributions to the literature on social business and technological innovation.

First, we build on the idea of social and economic logic coexistence by proposing how the social business blockchain can help facilitate harmony in social and economic business objectives. Theoretical perspectives of organisational identity (Moss et al., 2011), institutional logics (Battilana and Dorado, 2010) and hybrid organising (Gümüşay et al., 2020; Smith and Besharov, 2019) all presume that social businesses must balance social and economic objectives to be sustainable.

Thus, social and economic objectives exist on a continuum, in constant tension with one another, and require ‘balancing’ for the business to operate smoothly. In our social business blockchain, we explain how blockchain technology can enable social and economic logics to coexist harmoniously (Muñoz and Kimmitt, 2019).

To allow this coexistence to occur, smart contracts at the heart of the blockchain can enable trust to flow between the various stakeholders of the social business (i.e. beneficiaries, employees, volunteers and investors). This paper is the first of its kind to investigate the potential use of blockchain and smart contracts to monitor the interactions within a social business (see Fig. 2). One of the key functions of the blockchain is pre-agreed rules and adherence to them. As the blockchain is highly transparent, it offers collective monitoring of the achievement of social/environmental impact (e.g. reducing homelessness) and financial sustainability (e.g. income to run homelessness services). Thus, when trust is enabled through the blockchain, perhaps social and economic logics may harmoniously coexist rather than being in constant conflict, as prior literature suggests.

Second, we build upon work by those who have established a connection between digital technology and social business (e.g. Daoud et al., 2020; Lanza-Cruz et al., 2018; Ashraf et al., 2019), highlighting the role of new technologies in enabling organisational effectiveness and social change. The literature on technology and social business is limited, mainly focusing on how the technological innovations offered by social entrepreneurs meet some social and/or environmental need (Ramani et al., 2017). On the one hand, research has highlighted how technology is used as part of a social intervention (e.g. as a method to power clean water to communities by harnessing a children’s merry-go-round) (Saunders, and Borland, 2013). On the other, research has emphasised how technology can be used to manage the data that social businesses collect on their social and economic performance (Jamieson et al., 2020).

The model we propose in this paper positions the social business blockchain within those two domains. Because transparency and trust are at the centre of smart contracts in the blockchain, all stakeholders can have a more active role in holding the social business to account. The pre-agreeing of rules between all relevant stakeholders may also enable the improved co-design of social interventions, allowing communities to define their own social problems and solutions to them

(Kimmitt and Muñoz, 2018). Whilst this is an important design feature, the social business blockchain similarly enables transparent data storage, which is vital from a management information systems perspective. Taken together, these features can facilitate trust between parties and allow for the coexistence of the organisation's social and economic objectives. In this respect, our social business blockchain responds to calls for detailed research into the conditions under which social enterprises may be more effective (Engelke et al., 2015).

Third, by developing our social business blockchain, we present a conceptual map of how blockchain technology, utilising smart contracts, can be practically introduced as part of a new or existing social business model. Drawing on Yunus' (2010) principles of social business, our model offers meaningful insights into how blockchain technology can support more sustainable social businesses, by improving trust, transparency and effective and efficient interactions between stakeholders. We believe that this framework can inform practitioners and policy-makers focusing on the area of social business of the advantages, but also challenges, of the different stages of the implementation and use of this technology.

In particular, at a policy level, social businesses have gained much interest from governments globally. However, the supporting institutional infrastructure and ecosystems vary. For example, the UK has a highly supportive environment for social enterprises, as well as the legal infrastructure that formalises social businesses as 'Community Interest Companies'. It also has a highly collaborative culture where, for example, social businesses are contracted by public authorities to deliver particular services (Social Enterprise UK, 2017), thus normalising the obtaining of data and metrics to understand social business performance (Lowe and Wilson, 2017). In such a formalised environment, the implementation of a social business blockchain may be smoother, given the supporting infrastructure and linkage with pre-existing processes.

For practitioners, our framework has clear managerial implications. Social entrepreneurs must strategically guide the social and economic logics of their ventures. Our blockchain framework, as well as the questions posed in Table 4, can act as sensemaking prompts for navigating these logics through Yunus' principles. For example, improved data transparency between social venture stakeholders can provide social entrepreneurs with the necessary understanding of how their products/services work in practice, providing the contextual information to more easily understand the complex nature of social problems (Kimmitt and Muñoz, 2018). Further, the distributed nature of the blockchain may better enable managers to interpret impact data that drives performance management in social ventures.

5.2. Limitations and directions for future research

We recognise that there are both technical and academic limitations to implementing the model we have presented in this paper. First, technical limitations include specific issues related to blockchain implementation and skills. The blockchain is a relatively new technology which has grown significantly over recent years. Much time and money have been spent on developing the infrastructure surrounding the blockchain, incurring expensive start-up costs due to hardware purchasing and energy usage (Jabbar and Dani, 2020). Given that many social businesses are already stretched for resources (both financial and human), the additional technical expenses may be difficult to justify and implement. In terms of human capital, there is a significant skills gap which would need to be addressed in the usage and development of blockchain solutions. This highlights that blockchain remains in its infancy, leading us to the conclusion that further research into the factors that might encourage its mass adoption will be required before it can be classed as a mainstream option.

Second, in more institutionally informal contexts, the use of a social business blockchain may be less straightforward. For example, in many emerging economies, the concept of a social business is poorly understood, with low levels of cross-sector collaboration and understanding of

social impact measurement (Muñoz and Kimmitt, 2019). It may be harder to implement novel new technological processes in contexts still grappling with the social business concept, and where the surrounding infrastructure is also relatively underdeveloped. Further, the kind of data needed to operationalise a social business blockchain may be more challenging in such contexts, where efforts to collect sufficient data (i.e. on social impact performance) are more resource intensive and less normalised in the sector. Alternatively, the implementation of such technologies in emerging social industry contexts may actually allow them to circumvent challenges around mission drift experience in more formalised environments; this would be a fruitful area for further investigation.

In terms of academic limitations, we recognise that we have developed an 'ideal type' of solution in our social business blockchain. Although we draw on Yunus' seven principles as the dominant approach to define the purpose and *modus operandi* of social businesses, other approaches exist. The intricacies of these different approaches may differ; however, we believe our framework provides a solid foundation upon which a number of social business blockchain models could be developed. Building on this, our model remains conceptual; for its effectiveness to be fully evaluated, it would need to be operationalised. With these limitations in mind, we consider three future directions for research.

The first potential future direction is to address the practical implementation issue, by designing the smart contracts and algorithms proposed in our conceptual model to test its effectiveness. This would involve choosing some or all of the principles, and could involve working with a social business and its stakeholders to pilot test the implementation of the smart contracts and system design. This would provide an opportunity to understand if, in practice, this social business blockchain this paper has developed could address the theoretical issues of trust. Second, future researchers should consider other models of social business, and improve upon the conceptual ideas that we have presented in the paper to provide a refined social business blockchain. Finally, we would encourage others to build upon the extant research surrounding ethics and blockchain to begin exploring the ethics of algorithmic trust when building smart contracts in a blockchain. We think that this is of particular interest in the social business context, whereby actors are held to a high moral standard, and multi-stakeholder 'voice' is becoming more important in decision-making.

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Dr Anthony Devine is Senior Lecturer in Accounting, his current research and teaching focuses upon financial accounting, corporate governance and family businesses. Anthony's PhD is in family business and governance and his research interests include governance, values, education, innovation, entrepreneurship and accounting. He is currently involved with a number of professional organisations including the Family Firm Institute as a GEN faculty member and AACSB as a global trainer for Assurance of Learning.

Dr Abdul Jabbar is Senior Lecturer in Digital Transformation, he has worked on a wide range of internally and externally funded projects. His research ranges from disruptive technologies (Blockchain, Smart contracts, Big Data) to higher educational research (Organisational behaviour, consumerisation and managerialism). Abdul is currently working on research with a focus on authenticity and accuracy through the implementation and use of Blockchain within supply chain systems. This is a relatively new area which looks at how new upcoming disruptive elements can change the way organisations view data storage and the services they provide. His main research work at the moment revolves around Blockchain and supply chain, smart contracts, online security and fraud, social media influence and big data analytics.

Dr Jonathan Kimmitt is Senior Lecturer in Entrepreneurship, he joined NUBS in January 2014 and completing his PhD the same year. Jonathan's research and teaching focuses on issues related to entrepreneurship, international development and poverty. In particular, he conducts research on social entrepreneurship and microfinance. Similarly, he has researched social impact bonds and is more broadly interested in aspects of social investment and entrepreneurial finance. Jonathan teaches entrepreneurship courses with an international and social dimension.

Dr Chrysostomos Apostolidis is Senior Lecturer in Marketing, he joined Newcastle Business School in 2012, after working as a marketer in the business sector. Chrysostomos has been published in the fields of digital marketing, social marketing and sustainable consumer behaviour. The main focus of Chrysostomos' empirical work is the use of digital marketing to encourage ethical and sustainable consumption. Chrysostomos has published across a wide range of subjects including marketing strategy, digital marketing and consumer behaviour.